CHAPTER 5: PROPOSED EARLY RESTORATION PROGRAMMATIC PLAN: DEVELOPMENT AND EVALUATION OF ALTERNATIVES

This chapter provides information relevant to the programmatic alternatives proposed to address Early Restoration; the 44 Early Restoration projects being proposed in Phase III are presented and discussed in chapters 7-12. More specifically, this chapter provides information relevant to development of a reasonable range of programmatic alternatives proposed for continued pursuit of Early Restoration of injured natural resources and their services under the Oil Pollution Act (OPA) and in accordance with the Framework Agreement. Under each alternative, the Trustees identify a suite of appropriate Early Restoration project types. This chapter includes:

1. A discussion of the criteria used by the Trustees to develop and evaluate programmatic alternatives, referred to here as "programmatic criteria";
2. Descriptions of proposed Early Restoration programmatic alternatives considered by the Trustees, including a "No Action" alternative; and
3. Identification of the Trustees' preferred alternative for continued Early Restoration.

As per the NRDA regulations (15 C.F.R. § 990.53(a)(2)), the Trustees consider a reasonable range of restoration alternatives before identifying their preferred alternative. Those alternatives must be designed so that, as a package of one or more actions, each restoration alternative would make the environment and the public whole. Early Restoration for the Spill, however, is only the beginning of the process to restore natural resources and their services, and therefore is intended to contribute to, but will not fully meet, the goal of making the public whole.

The Council on Environmental Quality's (CEQ's) regulations implementing NEPA also direct agencies to rigorously explore and objectively evaluate all reasonable alternatives (40 C.F.R. § 1502.14(a)). An alternative is reasonable if it will achieve the stated purpose and need, restore or enhance the quality of the human environment, and avoid or minimize any possible adverse effects of the agency's actions upon the quality of the human environment (40 C.F.R . § 1500.1(e)–(f). Alternatives are developed consistent with a range of requirements designed to meet the purpose and need of the proposed action.

For Early Restoration, the Trustees considered both the OPA regulations and the Framework Agreement in developing requirements to meet the stated purpose and need for the Early Restoration program. These requirements are referred to in this chapter as "programmatic criteria" which are appropriate for the development and evaluation of programmatic alternatives. Programmatic criteria are used by the Trustees to narrow what could be a boundless list of options into a reasonable range of alternatives.

The remainder of this chapter provides information about the Trustees' process for identifying programmatic alternatives and their associated project types for continuing Early Restoration, culminating with the identification of four programmatic alternatives considered by the Trustees.

5.1 Criteria for Developing Programmatic Alternatives

This section describes the suite of programmatic criteria used by the Trustees to develop and evaluate Early Restoration programmatic alternatives that meet the purpose and need described in chapter 1. First, in developing programmatic alternatives appropriate for continuing Early Restoration, the Trustees considered the following criteria found in the OPA regulations at 15 C.F.R. § 990.53(a)(2):

- Whether each alternative is comprised of primary and/or compensatory restoration components that address one or more specific injury(ies) associated with the incident;
- Whether each alternative is designed so that, as a package of one or more actions, the alternative would make the environment and public whole;[1]
- Whether each alternative is technically feasible; and
- Whether each alternative is in accordance with applicable laws, regulations, or permits.

In addition to the criteria identified above, the Trustees found three of the OPA regulations evaluation standards (15 C.F.R. § 990.54(a) (2)-(4)) particularly suited to serving as programmatic criteria for evaluating Early Restoration programmatic alternatives:

- The extent to which each alternative is expected to meet the Trustees' goals and objectives in returning the injured natural resources and services to baseline and/or compensating for interim losses;
- The likelihood of success of each alternative; and
- The extent to which each alternative will avoid collateral injury as a result of implementing the alternative.[2]

The Framework Agreement and its criteria are important components of the Trustees' objectives for Early Restoration, and along with the OPA regulations, were considered in developing programmatic criteria. Although the Framework Agreement primarily contemplates project specific evaluation the concepts can be applied to the development of programmatic alternatives. Thus, when evaluating programmatic alternatives for consistency with framework criteria, the Trustees specifically considered whether the alternative:

- Addresses one or more specific injuries to natural resources or services associated with the incident; and
- Contributes to making the environment and the public whole by restoring, rehabilitating, replacing, or acquiring the equivalent of natural resources or services injured as a result of the Spill, or compensating for interim losses resulting from the incident.

[1] Because Early Restoration will not, by itself, make the environment and the public whole, in Early Restoration planning, the Trustees consider whether each alternative will *contribute to* making the environment and public whole.

[2] This criterion is adapted from the regulatory language, which includes consideration of "the extent to which each alternative will prevent future injury as a result of the incident." This adaptation reflects the fact that Early Restoration takes place concurrently with, rather than after completion of, NRDA activities for this Spill.

The remainder of this chapter focuses on application of the programmatic criteria for development of the proposed programmatic alternatives, which serve as both the OPA and NEPA reasonable range of alternatives.

5.2 Programmatic Alternatives and Project Types Development Process

For each alternative, the Trustees considered potential project types with a clear nexus to the injuries established by injury assessment efforts to date. As noted throughout this document (and in Chapter 4 in particular), the injury assessment process is ongoing. Currently available information indicates the presence of several types of injuries, and in some cases provides a preliminary indication of the potential severity and/or magnitude of impact. The Trustees identified Early Restoration project types suited to address injuries and losses that are currently indicated while the full assessment process continues to move forward.

In this document, the term "project type" refers to a category that includes restoration approaches with a comparable objective, using appropriate, established restoration techniques to meet that objective. As an example, the project type "Create and Improve Wetlands" includes restoration techniques that improve wetlands by establishing or reestablishing conditions conducive to wetland vegetative growth and/or by restoring hydrologic function within wetland habitats. Project types are not associated with a specific geographic location, nor are they limited to projects of a certain size or cost. Each of the project types has a relationship to one or more of the injury categories discussed in Chapter 4. Based on that continuing injury assessment, and in consideration of public scoping input, the Trustees developed the potential restoration project types described in this chapter.

Consistent with the programmatic criteria identified above, for potential project types, the Trustees considered the extent to which there exist restoration techniques that are (i) commonly applied, (ii) are well understood, (iii) have demonstrated benefits, (iv) have a high likelihood of successful implementation, and (v) are otherwise feasible and effective. Under the programmatic criteria, use of established restoration methods likely to meet the goal of accelerating meaningful restoration of injured natural resources and their services resulting from the Spill would be favored. Therefore, while a particular project may have innovative components, the identified programmatic alternatives represent project types with established restoration methods.

Development of proposed project types builds from the Trustees' restoration experience and from public input. Significant regional planning efforts previously have undertaken for restoration in the Gulf of Mexico, many of which were developed by the Trustee agencies and included extensive public involvement. The Trustee agencies bring decades of experience and knowledge of the Gulf ecosystem to the *Deepwater Horizon* Early Restoration planning effort. Supplementing this internal expertise, the Trustees are familiar with restoration input from the public, academic, non-governmental and private sectors, including restoration plans developed by several non-governmental organizations following the Spill. Development of potential Early Restoration project types identified in the June 4, 2013 Notice of Intent incorporated experience from these prior and ongoing restoration efforts to develop potential project types available for public consideration and input during the scoping period.

Specifically, beginning with the NOI, the Trustees sought input and involvement from the public to help define the issues and alternatives that should be examined in this document. Through the scoping

process, which included both meetings and opportunities for written comment, the public commented on the potential project types and provided general comment on the level of emphasis between ecological projects and recreational use projects. These inputs helped in the further development of the Early Restoration project types proposed here, as well as informing the structure of the programmatic alternatives.

Within the construct identified above, the Trustees developed the set of project types for inclusion in Early Restoration programmatic alternatives, consistent with the desire to seek a diverse set of projects providing benefits to a broad array of potentially injured resources.[3] Ultimately, this process resulted in the inclusion of twelve project types in programmatic alternatives evaluated for Early Restoration in this document, including:

1. Create and Improve Wetlands
2. Protect Shorelines and Reduce Erosion
3. Restore Barrier Islands and Beaches
4. Restore and Protect Submerged Aquatic Vegetation
5. Conserve Habitat
6. Restore Oysters
7. Restore and Protect Finfish and Shellfish
8. Restore and Protect Birds
9. Restore and Protect Sea Turtles
10. Enhance Public Access to Natural Resources for Recreational Use
11. Enhance Recreational Experiences
12. Promote Environmental and Cultural Stewardship, Education and Outreach

Additional project types were considered by the Trustees, but not evaluated in detail in this DPEIS because at this time, the Trustees do not consider them appropriate for Early Restoration. For example, while the Trustees are concerned about and continue to evaluate potential Spill-related injuries to marine mammals and to components of the deep benthic environment (e.g., deep sea corals, mesophotic reefs and deep soft bottom sediment habitat), additional time and effort is needed to identify appropriate, reliable restoration methods. More specifically, as raised in the scoping process, there was interest from some of the public to see an increased focus in Early Restoration on marine resources. Project types that address marine resources (e.g., restore and protect finfish and shellfish) are included in the alternatives described below. However, certain other marine resources are not yet a focus for Early Restoration alternatives. This approach is consistent with the Trustees' consideration to focus on types of projects that: (1) address injuries that are reasonably well understood; and (2) with

[3] The discussion of project type names, descriptions, and resources benefitted for purposes of developing and evaluating these programmatic alternatives are not necessarily indicative of NRD offsets agreed upon with BP for any particular project pursuant to the Framework Agreement. Offset types and their relationship to the specific projects proposed in this DERP are described in Chapters 7-12 of this document. Future proposed projects, even if similar to those proposed herein or within the same project type, may bear different proposed NRD offsets.

which the Trustees have significant experience, and allows the Trustees to predict costs and likely success with a relatively high degree of confidence.

The Trustees continue to evaluate the appropriateness of other potential project types for Early Restoration using new data and/or analysis, public input, Early Restoration experience, and other relevant information. If any "new" project types are proposed by the Trustees for inclusion in the Early Restoration process in the future, they would be subject to Trustee OPA and NEPA review, public review and comment on related documentation, Trustee consideration of public comments and, if applicable, finalization.

The Trustees are considering and evaluating the following four programmatic alternatives and their associated project types in this document:

1. No Action (i.e., no additional Early Restoration at this time);
2. Contribute to Restoring Habitats and Living Coastal and Marine Resources (project types 1-9 above);
3. Contribute to Providing and Enhancing Recreational Opportunities (project types 10-12 above); and
4. Contribute to Restoring Habitats, Living Coastal and Marine Resources, and Contribute to Providing and Enhancing Recreational Opportunities (project types 1-12 above).

Each programmatic alternative has a different grouping of project types that fit within its description. The Trustees believe that these alternatives are consistent with relevant programmatic criteria and provide a reasonable range for consideration and evaluation that is inclusive of all twelve project types. These alternatives are responsive to a theme that emerged during scoping. Numerous comments requested that Trustees focus on only ecological project types, e.g., habitat and living coastal and marine resources, for the remainder of Early Restoration. Other commenters requested focus only on recreational use project types; other commenters requested that Trustees focus across both areas.

5.2.1 Relationship Between Programmatic Alternatives and Proposed Projects

Of the 4 alternatives, the 3 programmatic action alternatives represent 3 different ranges of project types for continuing Early Restoration, and reflect whether Early Restoration would focus within the available funding on ecological project types (habitats and living and coastal marine resources), recreational use project types, or allow for consideration of both ecological and recreational use project types. The ultimately selected programmatic alternative will guide the types of projects that align with the Early Restoration program and are therefore appropriate to consider for potential implementation.

Specific to Phase III of Early Restoration, the selected programmatic alternative will define which of the 44 projects described in this document would be considered for individual decision. If Alternative 2 or 3 became preferred then 9 or 35 of projects respectively would be appropriate to consider for Phase III. If Alternative 4 remains preferred, each of the 44 individual projects would be considered for

implementation in Phase III. Future phases of Early Restoration would likewise identify and propose projects pursuant to the selected programmatic alternative. Under any programmatic alternative, a given project is individually evaluated under both OPA and NEPA, and the Trustees' decision of whether to proceed (action) or not proceed (no action) for that individual project is independent of the other projects. The number of projects ultimately selected for action in Phase III does not affect the Trustees' construct of a programmatic alternative.

5.3 Proposed Alternatives

5.3.1 Alternative 1: No Action (No Additional Early Restoration)

Both OPA and NEPA require the evaluation of the considered actions against a No Action alternative. For Early Restoration, the No Action alternative means that the Trustees would not pursue any additional Early Restoration actions at this time. Choosing this alternative would not preclude continued development of the Damage Assessment and Restoration Plan (DARP) and supporting PEIS, but no further implementation of Early Restoration would occur. The OPA regulations call for the evaluation of a natural recovery alternative in which no human intervention would be taken to directly restore injured natural resources and services to baseline (15 C.F.R. § 990.53(b)(2)). Early Restoration Offsets will be applied to the final injury claim, and it is not within the scope of this action to evaluate the long-term appropriateness of natural recovery for any particularly injury category. Analysis of each injury category and determination of whether to allow natural recovery or to undertake restoration will be presented in the DARP and supporting PEIS.

5.3.2 Alternative 1: Consistency with Programmatic Evaluation Criteria

The No Action Alternative is the only alternative that must be analyzed in an EIS that does not respond to the purpose and need for the action (National Environmental Policy Act Handbook, Handbook H-1790-1, U.S. Department of Interior, Bureau of Land Management). This alternative is not consistent with the programmatic criteria as no additional Early Restoration would be conducted at this time.

5.3.3 Alternative 2: Contribute to Restoring Habitats and Living Coastal and Marine Resources

Under Alternative 2, the Trustees would focus on pursuing Early Restoration project types and associated specific projects that contribute to initial restoration and protection of certain habitats and living coastal and marine resources. Nine project types are included in this alternative. A short description is provided of each project type, including examples of restoration techniques appropriate for each project type. These examples do not represent the full suite of techniques available to perform a given project, as numerous variables can affect project logistics.

In discussing project types and specific techniques, the Trustees recognize that that appropriate factors should be incorporated into project engineering and design to facilitate the realization of project goals and minimize the possibility of undesired outcomes. As part of project design and implementation, the Trustees will monitor the success of the applied restoration techniques.

5.3.3.1 Create and Improve Wetlands

This project type involves creating or improving wetlands by establishing or reestablishing conditions conducive to wetland vegetative growth and by restoring hydrologic function within wetland habitats. Appropriate restoration techniques for this project type include but are not limited to:

1. Create or enhance wetlands through placement of dredged material in shallow water bodies
2. Replant vegetation via propagation and/or transplanting
3. Restore hydrologic connections to enhance coastal habitats
4. Backfill canals including drainage canals, access canals established for petrochemical development and canals constructed for other purposes (i.e., recreational and residential uses)

Create wetlands through placement of dredged material in shallow water bodies. Wetland enhancement using sediment placement can be accomplished in several ways. For example, sediment can be deposited in thin layers to increase the elevation of degraded wetlands to within the intertidal range, as has been done across the Gulf. Sediment placement can be used to stabilize eroding natural wetland shorelines, including in combination with engineered breakwaters, or to nourish subsiding wetlands. Dewatered sediment can also be used to construct erosion barriers that reduce loss of wetland acreage and aid in restoring a degraded wetland. Appropriate borrow sources would be evaluated on a project specific level.

Marsh creation using sediment would be designed to contribute to a diversity of open water and marsh edge habitat into the marsh complex. Marsh edge is a vital microhabitat that is heavily utilized by shrimp, crabs, and several fish species.

Replant vegetation via propagation and/or transplanting. In addition to placing sediment, restoration can include re-vegetation. Wetland plants can establish naturally or can be planted. Planting vegetation in marsh and mangrove habitat can reestablish the native plant community and stabilize marsh sediments to maintain the integrity of the marsh platform. Vegetation can be planted in areas to help new restoration become functional faster, or help degrading areas recover from disturbances.

Restore hydrologic connections to enhance coastal habitats. Wetland restoration can include restoring or enhancing natural tidal and freshwater flow regimes in estuarine and coastal transitional landscapes and adjacent watersheds (including the restoration or maintenance of salinity gradients across freshwater, intermediate, brackish, marine, and hypersaline systems). Techniques could include the following: filling, reshaping and re-contouring drainageways to restore hydrology, wetland and/or sedimentary functions; removing blockages, breaching dikes, levees, and spoil banks; and constructing, enlarging, or repairing malfunctioning conveyances (e.g., culverts, bridges, etc.). These modifications can support the restoration of native wetland vegetation composition and cover, and improve connectivity between habitats.

Backfill canals including drainage canals, access canals established for petrochemical development and canals constructed for other purposes (i.e. recreational and residential uses). Wetlands can also be created or restored by filling in abandoned canals and other channelized waterways with dredged or spoil sediments and replanting with appropriate material. Access canals from abandoned oil and gas exploration and residential sites as well as other channelized waterways have become conduits for the

introduction of salt water into previously freshwater or brackish-water marshes. Dead-end canals often result in degraded water quality due to a lack of tidal flushing, and the canals expose formerly protected marshes and transitional coastal wetlands to erosive wind, wave and boat wake energy. A potential cost-effective source of material for backfilling access canals would be existing spoil banks adjacent to these canals. Reducing the number and extent of artificial spoil banks may also provide the added benefit of restoring hydrology, for example, in circumstances where spoil banks have altered natural sheet flow.

5.3.3.2 Protect Shorelines and Reduce Erosion

This project type involves developing shore protection systems to slow or prevent erosion. Shorelines maintain the integrity of natural coastal systems by providing a break or buffer to wave and current energy and are important transitional habitats. Shore protection systems are designed to protect and retain shorelines and landward areas. Appropriate restoration techniques for this project type include but are not limited to:

1. Construct breakwaters on/or adjacent to shoreline
2. Construct living shorelines

Construct breakwaters on/or adjacent to shoreline. When used for shore protection, breakwaters are usually built either on or adjacent to the shoreline and are typically oriented parallel to the shore. Breakwaters are designed to break waves or reduce wave action landward of the structure. Depending on their design, breakwaters attenuate wave energy by dissipating, reflecting, or changing the refraction and diffraction patterns of incoming waves. The resulting reduction in wave energy arriving at the shoreline tends to decrease the ability of waves to entrain and transport sediment, thereby decreasing erosion at the shoreline. Breakwaters can extend above the water or be submerged, fully or partially, where they function as reefs or sills. Breakwaters can be solid or porous, and have vertical or sloping faces, and can be continuous or segmented.

Construct living shorelines. Constructing breakwaters can induce sediment deposition, and provide shelter for wetland plants and shoreline habitats to counter shoreline erosion and loss. This technique may include living shoreline features such as the incorporation of oyster shell in the construction of breakwaters. As with breakwaters described above, living shorelines are designed to induce sediment deposition, and provide shelter for wetland plants and shoreline habitats to counter shoreline erosion and loss. Living shorelines use a variety of stabilization and habitat restoration techniques that span several habitat zones and utilize a variety of structural and organic materials. As noted above, oyster shell can be used in living shoreline projects as a substitute for or in addition to stone rip-rap to create hybrid structures that increase habitat diversity. In addition, created wetlands can be constructed on the shoreline side of breakwaters. Subtidal reef restoration, intertidal oyster restoration and oyster escarpments may also be appropriate depending on shoreline conditions and depths.

5.3.3.3 Restore Barrier Islands and Beaches

This project type involves restoring barrier islands and beaches which provide important coastal habitat. Appropriate restoration techniques for this project type include but are not limited to:

1. Re-nourish beaches through sediment addition

2. Restore dune and beach systems through the use of passive techniques to trap sand
3. Restore barrier islands via placement of dredged sediments
4. Plant vegetation on dunes and back-barrier marsh
5. Construction of groins, breakwaters, or sediment by-pass structures

Re-nourish beaches through sediment addition. Beach re-nourishment or replenishment involves the placement of suitable material from sources outside the natural sources of sediment for the eroding beach. Sediment is typically taken from a borrow site where the physical and chemical sediment characteristics closely match those at the restoration site. Identification of suitable borrow material is crucial, including consideration of sediment color, grain size, and other characteristics. These factors are important because introducing different sediment characteristics could negatively impact aesthetics, erosion potential and general use by shoreline fauna as well as decrease the lifespan of the re-nourished beach.

Restore dune and beach systems through the use of passive techniques to trap sand. Passive techniques can be used to trap sand transported by winds and waves to restore dune and beach systems. Passive restoration techniques could include, but are not limited to, placement of sand fencing, hay bales, and recycled Christmas trees, or planting native dune vegetation to capture sand.

Restore barrier islands via placement of dredged sediments. Restoration involving the placement of dredged sediments can stabilize, maintain, and restore degraded beach, dune, and back-barrier marsh habitats on existing barrier islands. Sediments used for restoration can be obtained by beneficially using dredged material from navigation channels or by accessing material from approved borrow areas. Dredged material should closely match the chemical and physical characteristics of sediment at the restoration site and target borrow areas should be within reasonable proximity to suitable sites for sediment placement. Among other factors, local hydrodynamics and sediment deposition processes should be carefully monitored and modeled prior to implementation of this technique.

Plant vegetation on dunes and back-barrier marsh. Planting vegetation on dunes and in back-barrier marshes can restore the plant community and provide additional habitat and foraging area for shoreline organisms. Vegetative root structure can stabilize marsh and beach sediments, and contribute to the stability of the shoreline by helping to reduce erosion and encouraging sediment deposition. Planting vegetation can also contribute to the ecosystem function of dunes and back-barrier marshes, providing habitat for fish and invertebrates, birds, and other shoreline wildlife.

Construction of groins, breakwaters, or sediment by-pass structures. In addition to beach re-nourishment, construction of engineered structures such as breakwaters, groins and sediment by-pass methods can be used to decrease erosion of engineered beaches. These structures can increase the life span of re-nourished beaches near passes, inlets, or in areas where erosion rates are high and where sediment supply is limited.

5.3.3.4 Restore and Protect Submerged Aquatic Vegetation

This project type involves restoring submerged aquatic vegetation (SAV) beds using one or more techniques including re-vegetation and protection of SAV with buoys, signage, and/or other protective

measures. These techniques are often used in combination. Appropriate restoration techniques for this project type include but are not limited to:

1. Backfill scars with sediment
2. Re-vegetate SAV beds via propagation and/or transplanting
3. Enhance SAV beds through nutrient addition
4. Protect SAV beds with buoys, signage, and/or other protective measures

Backfill scars with sediment. SAV beds are often injured by motorized boat propellers, with the two primary means of damage observed as linear scars and blowholes. Scar injuries are formed by the dredging effect of the turning propeller, or occasionally the vessel's hull, as the boat travels over a shallow bank. Blowholes are depressions formed from the concentrated force of propeller wash as a vessel attempts to power off a shallow SAV bed. Once injury occurs, rising and falling tides, wind, waves, vessel wakes or currents can expand scars and blowholes into adjacent, intact SAV. Backfilling blowholes or propeller scars with native fill (i.e., local sediment) is a rapid way of returning the seafloor to its original elevation and grade. The focus of this restoration action is to stabilize the substrate as soon as possible to prevent further deterioration of the SAV bed as a result of erosion, and prepare the area for re-colonization by neighboring or transplanted SAV.

Re-vegetate SAV beds via propagation and/or transplanting. SAV beds can be re-vegetated through transplanting whole plants or plugs. Transplanting whole plants (either cultivated or taken from donor beds) requires each plant to be planted by hand. Planting with plugs (uses tubes to secure plants with surrounding sediment and rhizomes intact) helps anchor the new transplant to the sediment until the roots take hold.

Enhance SAV beds through nutrient addition. Nutrients can be added to SAV beds via the use of bird stakes or fertilizer spikes to enhance regrowth in SAV bed blowholes or in smaller areas in need of restoration or enhancement. While many coastal areas suffer from high levels of nitrogen loading from nonpoint sources, these diffuse nutrients are not as effective in fostering SAV recovery as nutrient input from "bird stakes". This method of fertilization utilizes the nutrient composition of bird feces deposited from birds resting on stakes and is effective in facilitating the colonization of SAV in some areas and/or promoting faster growth of transplants. This technique has been tested and found to be effective for areas in Florida where nutrient limitation is impairing seagrass growth.

Protect SAV beds with buoys, signage, and/or other protective measures. Using protective measures can help ensure that existing or restored SAV beds are not damaged through boating or other activities that take place around SAV beds. Protective measures could include buoys and signage or other educational campaign efforts.

5.3.3.5 Conserve Habitat

This project type involves identifying, protecting, managing, and restoring habitat areas or land parcels to complement and advance the goals of coastal management, habitat conservation, and ecosystem restoration. Areas could be nominated for conservation based on their potential for loss or degradation, their ability to protect or buffer wetlands, their contributions to restoring ecosystems and other

significant coastal habitats, to creating connections between protected areas, and/or to reducing coastal water pollution. Appropriate restoration techniques for this project type include but are not limited to:

1. Conserve habitat through fee title acquisition
2. Conserve habitat through property use restrictions and/or management
3. Conserve, manage and restore habitat that is being acquired or is currently under protection.

Conserve habitat through fee title acquisition. The Department of the Interior has the authority to use Eminent Domain to acquire lands and interests for the public good. However, the Department will not exercise this authority to implement Early Restoration projects in relation to the Spill. Acquisition of a land parcel would require voluntary participation by landowners who were willing to sell their land. Successful negotiations would result in land acquisition by the appropriate State or Federal land management agency, accredited land trust, land protection organizations or other qualified non-government organizations. Once areas are acquired, management plans are often developed and implemented to enhance their conservation value.

Conserve habitat through property use restrictions and/or management. In addition to acquisition through fee title, habitat can be protected through the acquisition of lesser property interests and the enactment of voluntary use restrictions. For example, a conservation easement is a legally enforceable agreement between a property owner and a land trust (or other land protection organization) or government agency for the purposes of land preservation and conservation. Land subject to a conservation easement may remain in private ownership; however, a conservation easement would restrict development and certain uses on the property. Regardless of the vehicle used to conserve, acquire, restore, or manage land, the benefits and potential impacts are site and project-specific depending on the type of habitat and resources present.

Conserve, manage, and restore habitat that is being acquired or is currently under protection. Management plans are often developed and implemented to enhance the conservation value of acquired parcels or parcels under protection. Management plans could provide for habitat management or restoration activities in conservation areas to maintain or enhance habitat quality or ecosystem condition; they could also include public access or amenities, or controls on public access. Such plans would identify system modifications that could enhance habitat quality or ecosystem condition, and could consider how multiple protected land parcels can be jointly managed to support multiple life stages of a species or improve the overall condition of a receiving water body.

Conservation, restoration and management approaches identified in plans might include altering land cover or land management, such as reforestation, fire management, removing invasive plant species or eliminating artificial water diversions or use of water diversions to establish the restored hydrologic condition.

5.3.3.6 Restore Oysters

This project type involves restoring or creating oyster reefs to enhance or expand available intertidal or subtidal oyster reef habitat. Appropriate restoration techniques for this project type include but are not limited to:

1. Restore or create oyster reefs through placement of natural or other appropriate materials
2. Enhance oyster production through cultch placement, relay, or cultivation

Restore or create oyster reefs through placement of natural or permissible materials. Oyster reef restoration has been demonstrated to be successful; however, careful project siting is crucial. Projects need to consider basic factors such as suitable substrate, remains of previous oyster reefs, adequate spat set, fouling organisms, currents, predation rates, disease prevalence and intensity, salinity ranges, and tidal elevation. In addition, substrate should be at an appropriate depth to allow for optimal oyster growth and development. The reef location should also have sufficient tidal flushing to provide ample food for oysters. Reefs constructed with natural material (e.g., oyster or other bivalve shells) provide the texture and chemical cues that attract oyster larvae and increase recruitment. However, oyster shell is often expensive and is not always available in large quantities at an economically feasible scenario to build reefs. Other material, such as limestone, concrete, and engineered structures can also be used to create or enhance reefs.

Commercial oysters are harvested from sub-tidal areas, but intertidal oysters are believed to be important as a source of larvae to maintain populations of both intertidal and sub-tidal oysters. Not all oyster reef creation projects are for the purpose of harvest. Oyster restoration may include placement of oyster cultch material near on exposed shorelines to establish or reestablish intertidal oyster reef and enhance or increase secondary productivity.

Enhance oyster production through cultch placement, relay, or cultivation. Oyster production can be enhanced through placement of cultch materials, relay/relocation, or cultivation. Cultch material consists of limestone rock, crushed concrete, oyster shell and other similar material that, when placed in oyster spawning areas, provides a substrate on which free floating oyster larvae can attach and grow into oysters. In the case of projects to relocate reefs, cultch material including live oysters would be harvested from areas with unsuitable or poor habitat conditions and placed in other areas with more optimal conditions for growth. Suitable areas generally have strong bottom currents in bay bottoms and intertidal and subtidal areas. In the case of projects intended to expose suitable substrate for oyster recruitment, existing oyster reef substrate would be “turned over” using bagless oyster dredges to expose suitable surfaces and enhance spat set.

5.3.3.7 Restore and Protect Finfish and Shellfish

This project type would restore and protect finfish by encouraging changes in fisheries efforts and gear, and removing fishing-related debris from aquatic environments. For example, gear modifications that reduce direct and bycatch-related fishing mortality can be effective and practical approaches to restoring populations of recreational, commercial and non-target species. Appropriate restoration techniques for this project type include but are not limited to:

1. Provide incentives for a voluntary, temporary reduction in commercial fishing effort
2. Provide incentives for voluntary use of technological innovations
3. Remove debris from freshwater, estuarine, marine, and/or critical habitats

Two of these techniques provide incentives to temporarily reduce fishing effort and modify fishing gear. The approaches to reducing fishing mortality described are similar to those used in fisheries

management. They differ in that they could be implemented by means of (1) remunerative contracts with commercial fishers to voluntarily reduce fishing effort or the catch of specific species, at least temporarily; and (2) incentives and training for commercial fishers to adopt tools and methods to reduce release mortality. There are several different fisheries that would be appropriate for these techniques, such as the pelagic longline fishery.

Provide incentives for voluntary, temporary reduction in commercial fishing effort. One technique involves voluntarily setting aside some fraction of the catch, catch limit, or individual fishing quota for conservation. The reduction in fishing effort would be for a specified period of time and would compensate fishers at fair market value for leaving fish in the water. Compensation details (price, allocation, etc.) and assurance methods would need to be determined, but this type of technique would result in a reduction in fishing mortality, allowing the population that the fishery targets, as well as bycatch species, to be restored more rapidly.

Provide incentives for voluntary use of technological innovations. This restoration approach could involve providing incentives for fishing vessel owners and operators to voluntarily modify fishing gear or practices to reduce fishing and bycatch mortality. Gear modifications can help target specific size classes of fish for harvest in an effort to protect adults or juveniles and increase survival of non-targeted bycatch returned to the water.

Remove debris from freshwater, estuarine, marine, and critical habitats. Finfish and shellfish restoration could also include the removal of debris from marine, estuarine, and freshwater environments that may trap, hook and entangle species. There are multiple sources of marine debris, including fishing gear lost from commercial fishing vessels, recreational boats, and shore-fishing activities. Removal of derelict fishing gear consisting of nets, lines, crab pots, shrimp nets, and other recreational or commercial fishing equipment that has been lost, abandoned, or discarded in the aquatic environment helps prevent unintentional mortalities.

5.3.3.8 Restore and Protect Birds

This project type involves protecting bird populations by reducing mortality and directly restoring habitat. Appropriate restoration techniques for this project type include but are not limited to:

1. Protect bird nests and nesting habitat, and control predators
2. Prevent and control invasive species
3. Create/enhance bird nesting and/or foraging habitat

Protect bird habitats including nests and nesting habitat, and control predators. Protecting bird habitats including nests and nesting habitat can be accomplished through the use of exclusion devices, vegetated buffers, or distance buffers. One of the most common methods for minimizing disturbance to birds is to create buffer zones between human activities and bird areas. Buffer areas minimize visual and auditory impacts associated with human activities near nest sites. Buffer distances would be determined for a particular species or activity relative to the type of activity occurring such as intensity of activity, time of year, and sensitivity of the species. Seasonal restrictions could be implemented to decrease stress on the birds from the courtship period through fledging of young.

Protecting bird habitats including nests and nesting habitat is important for ensuring the viability of bird populations. Loss of a breeding season and the recruitment of young into the population can result in the gradual decline of a population and can contribute to the decline of a species over the long-term, particularly for range or habitat-restricted species or subspecies. Ground-nesting birds, their eggs, and nestlings are especially vulnerable.

Predation can be a substantial factor when nest sites or colonies are located in habitat that does not afford adequate protection. There are several options for removing or excluding predator threats to nesting birds. Predator control by non-lethal (e.g., exclusionary fencing, live-trapping) and lethal methods consistent with current management practices could be implemented at the discretion of the land-managing agencies based on their evaluation of necessity and feasibility. Non-lethal management of predators on ground-nesting or colonial wading bird species could use techniques that exclude predators from a single nest or from the entire area surrounding a colony. Methods also include baiting, trapping, or hunting, and exclusionary fencing to lessen numbers of undesired wildlife species. These methods help to minimize disturbances associated with human activities and predators that can result in reduced mortality. In addition to predator exclusion or removal, there are other options for minimizing disturbances to nesting birds.

Prevent and control invasive species. Restoration can also focus on removing invasive species that negatively impact bird habitat. There are several methods used to manage land-based or terrestrial invasive species. For plants, these methods include cutting, application of pesticides or herbicides, and biological control to manage plant species.

Create/enhance bird nesting, foraging, and/or other important habitat. Restoration can also focus on creating or enhancing habitat. Creation of habitat can include physical construction of new nesting and/or foraging habitat such as barrier islands and beaches or herbaceous wetlands. Enhancement of habitat can include physical changes to improve nesting and/or foraging habitat such as replanting shoreline vegetation or rotovating (plowing) to remove vegetation for a limited time for certain species.

5.3.3.9 Restore and Protect Sea Turtles

This project type involves restoring and protecting sea turtles through activities that enhance sea turtle habitat, increase the survival of sea turtles at various life stages, or both. Appropriate restoration techniques for this project type include those restoration actions outlined in the Recovery Plans[4] for each of the impacted Gulf sea turtle species and may include but are not limited to the following restoration examples:

1. Improve nesting beaches
2. Protect and conserve nesting beaches
3. Expand existing stranding networks and rehabilitation capabilities
4. Enhance compliance monitoring through gear monitoring team coordination and enhanced observer monitoring

[4] http://www.nmfs.noaa.gov/pr/recovery/plans.htm#turtles

5. Enhance training and outreach for enforcement personnel to improve expertise in compliance requirements and increased enforcement activities

Improve nesting beaches. The nesting success of sea turtles can be improved by identifying and reducing ongoing threats at nesting sites and protecting and enhancing those nesting sites through threat reduction. Restoration actions that may reduce threats from anthropogenic or natural causes may include ecologically-based predator control or nest relocation where threats cannot be mitigated by other measures. Potential enhancements of nesting sites include, use of turtle-friendly lighting, monitoring, outreach, and education. Education and outreach along with turtle-friendly lighting projects would reduce human light sources, minimizing the potential for hatchlings to become disoriented and increasing the number of hatchlings reaching the water. Nest protection measures that enhance nesting beaches, include identifying, marking and monitoring nesting. Nest detection and enhancement would reduce the potential for predation of eggs, and protect nest sites from human use that could cause harm or destruction of nests. Greater monitoring of nests could improve hatchling survival and result in a higher number of sea turtles surviving to adulthood and reproductive life stages.

Protect and conserve nesting beaches. Many nesting beaches are under threat of development. The protection and conservation of nesting beaches could include purchasing beach-front properties. As sea-levels rise, nesting habitats will become pinched between upland development and the sea. Land purchases could extend the life of nesting beaches by giving the beach/dune system room to migrate landward in response to erosion and sea-level rise.

Expand existing stranding networks and rehabilitation capabilities. Sea turtle restoration could also focus on improving the ability of experts and trained personnel to respond to strandings of sea turtles by expanding stranding networks and rehabilitation capabilities.

Reducing response times to live and dead stranded turtles, increasing assessment efforts to determine mortality sources, and expanding capacity to respond to unusual stranding events would all potentially help turtles. Funding of additional training and responders, as well as for supplies, equipment, data management needs, necropsies, and facilities would increase programmatic capabilities and ultimately increase the number of successfully rehabilitated turtles returned to the Gulf. Achieving this goal could also require additional facilities for stranding and rehabilitation operations and equipment storage as well as providing support for mobile response units to triage and stabilize turtles. Mobile units increase the changes of survivorship and are one of the most often called for resources in cold-stunning events.

Enhance compliance monitoring through gear monitoring team coordination and enhanced observer monitoring. Increases in coordination of gear monitoring teams with other State and Federal agencies in order to avoid duplication of effort, and to allow teams to identify and target areas that are not presently receiving adequate monitoring, could also be part of sea turtle restoration. Courtesy dockside and at-sea inspections by gear specialists would be implemented to provide information on gear requirements and best-use methods. This technique would also provide the training for and increase the number of observers and observer coverage dedicated to specifically designed sea turtle bycatch monitoring. At-sea and dockside inspections by NOAA Fisheries Service gear specialists and marine law enforcement personnel continue to be the most effective means of sustaining compliance with turtle excluder device regulations. Observers and gear monitoring teams provide important information on

protected species interactions with fishing activities, which helps to improve management decisions for protecting and recovering populations. This effort has been shown to be the most effective method of reaching the fishing industry with information on regulated gear requirements and best-use methods (DOC et al. 2011)[5].

Enhance training and outreach for enforcement personnel to improve expertise in compliance requirements and increased enforcement activities. Training and education could include developing and implementing a State-led Gulf-wide program for enforcement officers to enhance their knowledge and compliance with existing requirements. This technique could include additional money for gas and maintenance of boats to support appropriate increased enforcement activities as well as hiring additional State enforcement personnel. This would support efforts to reduce the sea turtle bycatch mortality in the shrimp trawl or other fisheries across the Gulf. In addition, this could support efforts by local governments to enforce lighting ordinances in beachfront areas.

5.3.4 Alternative 2: Consistency with Programmatic Evaluation Criteria

Alternative 2 is consistent with the programmatic criteria identified in this chapter (Section 5.2), for reasons summarized below:

- The alternative addresses several injuries associated with the incident, by incorporating nine restoration project types that contribute to restoration and/or protection of certain habitats and living coastal and marine resources injured due to the Spill;
- Although natural resource damage assessment activities are ongoing, information available to date indicates that projects within identified categories would help offset injuries to habitats and living coastal and marine resources injured due to the Spill, thereby contributing to the Trustee goal of making the environment and the public whole;
- As described throughout the preceding section of this document, there are multiple, well-established, commonly utilized techniques available for undertaking projects within Alternative 2. Project types that are technically feasible, have a high likelihood of success and can be implemented in conformance with applicable laws, regulations and permits are available; and

[5] United States Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service. 2011. Annual Report to Congress on the Bycatch Reduction Engineering Program. Website accessed on January 3, 2012: http://www.nmfs.noaa.gov/by_catch/docs/brep_final_2011.pdf.

- As described in Chapter 6 of this document, the Trustees have carefully considered the potential beneficial and adverse impacts of Alternative 2 project types, and based on that evaluation find that implementation of this Alternative would reasonably limit the potential for collateral injury(ies).

This alternative meets the purpose and need for Early Restoration described in Chapter 1. This programmatic alternative allows the Trustees to consider 9 of the 44 projects described in Chapters 7-12 as the projects proposed for implementation in Phase III. All projects are subject to individual review under OPA, NEPA and other statutes and ultimately to individual decision by the Trustees whether to proceed or not proceed with selection of a given project. If this alternative were selected, projects identified to propose in any specific restoration planning phases (inclusive of Phase III) would focus on, and be limited to, projects restoring for habitats and living and coastal marine resources. Correspondingly, if all of the available Early Restoration funding is expended, relatively more Offsets for habitat and living and coastal marine resources would be established by Early Restoration when compared to alternatives 3 and 4. All accounting for Early Restoration Offsets as credits for injury would be conducted in the final natural resources damage claim.

5.3.5 Alternative 3: Contribute to Providing and Enhancing Recreational Opportunities

Under Alternative 3, the Trustees would focus on pursuing Early Restoration project types and associated specific projects that contribute to providing and enhancing recreational uses lost as a result of the *Deepwater Horizon* oil spill. Three project types are included in this alternative. A short description is provided of each project type, including examples of restoration techniques appropriate for each project type.

5.3.5.1 Enhance Public Access to Natural Resources for Recreational Use

This project type involves creating new or improved access to natural resources for recreational purposes. Despite the popularity of coastal recreation, the public's ability to take advantage of such opportunities can be limited by a lack of access points and/or access infrastructure. Moreover, well-planned public access may help protect natural areas that would otherwise be used as informal access points. Enhanced public access will provide more opportunities for the public to engage in coastal recreational activities such as swimming, boating, fishing, bird watching, beach walking, and photography. Appropriate restoration techniques for this project type include but are not limited to:

1. Improving access to natural resources for recreational use through the construction or enhancement of infrastructure; and
2. Purchase of access rights, easements, and/or property to increase access to resources for recreational purposes.

Improving access to natural resources for recreational use through the construction or enhancement of infrastructure. Access to recreational areas can be improved by enhancing or constructing infrastructure (e.g., boat ramps, piers, boardwalks, dune crossovers, camp sites, or other lodging, educational/interpretive spaces, navigational channel improvements/dredging, safe harbors, navigational aids, ferry service, rebuilding of previously lost facilities, promenades, trails, roads and bridges to access natural resources, and marina pump out stations). Improved public access could also be accomplished by providing or improving water access in publicly owned areas (parks, marinas). This

might also increase boating safety. The construction and operation of boat ramps, piers, or other infrastructure could occur on publicly-owned lands. Larger-scale infrastructure improvements like a ferry service or the construction or improvement of roads and bridges could also serve to improve access to natural resources.

Purchase of access rights, easements, and/or property in areas to increase access to resources for recreational purposes. In some parts of the Gulf, access to shoreline and/or water-based recreational opportunities is limited by the availability of public access points. The targeted purchase of easements, access rights and/or fee simple ownership of property from willing sellers, can provide new access points for public recreational use.

The Department of the Interior has the authority to use Eminent Domain to acquire lands and interests for the public good. However, the Department will not exercise this authority to implement Early Restoration projects in relation to the Spill. Preservation of habitats through acquisition of land or easements will only be from willing sellers or participants. Landowners will be under no obligation to sell to any of the governments associated with the Trustees. Neighbors adjacent to land purchased to gain access to resources under this restoration plan will retain all of their current rights to their land. The government agencies are required to pay fair market value for land purchased. Fair market value will be determined through established appraisal procedures. Where land is occupied, relocation assistance may be available.

5.3.5.2 Enhance Recreational Experiences

This project type involves enhancing the public's recreational experiences. The experience of recreational activities like swimming, boating, diving, bird watching, beach going and fishing can vary depending on the appearance and functional condition of the surrounding environment in which they occur. Appropriate restoration techniques approaches for this project type include but are not limited to:

1. Re-nourish beaches through sediment addition
2. Place stone, concrete, or permissible materials to create artificial reef structures
3. Construction to enhance recreational experiences.
4. Enhance recreational fishing opportunities through aquaculture
5. Reduce and remove land-based debris

Re-nourish beaches through sediment addition. Recreational activities on beaches can be enhanced when beach conditions are improved through the addition of appropriate sediment. Beach re-nourishment or replenishment involves the placement of suitable material from sources outside the natural sources of sediment for the eroding beach. The increased sediment allows for more available area for recreational use which can improve the experience. Identification of suitable borrow material is crucial, including consideration of sediment color, grain size, and other characteristics. These factors are important because introducing different sediment characteristics could negatively impact aesthetics, erosion potential and general use by shoreline fauna as well as decrease the lifespan of the re-nourished beach.

Place stone, concrete, or permissible materials to create artificial reef structures. An artificial reef is defined as a submerged structure that is constructed or placed on the existing substrate in coastal or marine waters. Properly sited, constructed and managed reef sites can be attractive locations for recreation, including fishing, snorkeling, and scuba diving. An artificial reef can be constructed from a variety of different materials including, but not limited to, stone, concrete blocks, decontaminated vessels, or engineered reef unit structures. The site considerations could include locations that enhance or create habitat, support a diversity of fishery resources, and do not impede or interfere with navigation. Artificial reefs enhance recreational opportunities for users such as anglers, snorkelers, and divers.

Construction to enhance recreational experiences. Besides providing access, new construction can benefit the recreational experience by providing for wildlife viewing platforms and fish cleaning shelters for example. New construction could provide meeting spaces for resource-based education and other programs.

Enhance recreational fishing opportunities through aquaculture. This technique can include the breeding, rearing, and release of finfish and shellfish species into the Gulf of Mexico and adjacent coastal bays to increase densities of target species so that recreational fishing opportunities are enhanced.

In the context of Early Restoration, stock enhancement programs could have one or more goals that include providing additional catch for recreational anglers (and potentially commercial anglers), providing information to fishery managers, and/or helping to mitigate losses suffered from anthropogenic effects. This could include the expansion of existing hatchery operations, the construction of new facilities, and the release and monitoring of finfish and shellfish species reared in those facilities. Fishery managers may also use this learning to inform management decision-making, with the potential to enhance recreational experiences. For example, techniques for bait and sport fish hatchery production and holding systems can be developed and refined. Fish produced in hatcheries can be marked, released, and monitored for the purpose of informing fishery managers about the recruitment, survival, and population health of recreationally significant marine fish species.

Each stock enhancement project will be evaluated on a project-specific basis that identifies its goals and objectives and ensures quantification of those parameters that enable measurement of project success. Any stock enhancement project must utilize the 'Responsible Approach' techniques that have been outlined by Blankenship and Leber (1995) and Lorenzen et al., 2010)[6].

Reduce and Remove Land-Based Debris. Storm-induced debris, in addition to intentional or unintentional disposal of domestic or industrial wastes, can be sources for land-based debris entering the ocean. Land-based debris can be disturbing and disruptive to recreational activities like hiking, beach going, and boating. Removal of marine debris not only restores beauty of coastal environment but removes potentially harmful debris for humans and wildlife.

Efforts to reduce land-based debris could incorporate public education and awareness, as well as physical removal of debris. Specific techniques for removing land-based debris are varied and will depend in large part on the characteristics of the relevant habitat and debris. In general, techniques can be categorized into two types: 1) manual methods (e.g., workers using hand tools); and 2) mechanized methods (e.g., utilizing ATV or tractors with sifters, backhoes, roll-off dumpsters and/or similar machinery).

5.3.5.3 Promote Environmental and Cultural Stewardship, Education, and Outreach

This project type involves providing and enhancing recreational opportunities through environmental and cultural stewardship, education, and outreach activities. Educational activities would provide additional recreational opportunities that improve the connectedness of the public to the environment and develop an awareness and appreciation for natural and cultural resources of the Gulf of Mexico. Appropriate restoration techniques for this project type include but are not limited to:

1. Create or enhance natural resource related education facilities
2. Create or enhance natural resource related education programs

[6] Such 'Responsible Approach' techniques include, but are not limited to: structuring the project around the specific restoration goal(s); evaluating habitat needs and conditions (abundance of prey and predators) to ensure adequate habitat availability and suitability for stocked individuals; managing and assessing ecological impacts through a well-designed hatchery/broodstock and release program (e.g., ecosystem, genetic, and disease management); assessing the economic and social benefit and costs; incorporating post-release monitoring protocols (i.e., identification of stocked individuals, contribution and potential substitution rates); and, utilizing adaptive management (e.g., modify or cease stocking program depending on monitoring and evaluation results).

Lorenzen, K., K. M. Leber, H. L . Blankenship, 2010. Responsible approach to marine stock enhancement: An update. Reviews in Fisheries Science, 18:189-210.

Blankenship, H.L. and Leber, K.M. 1995. A responsible approach to marine stock enhancement. American Fisheries Society Symposium, 15:167-175.

Create or enhance natural resource related education facilities. Education facilities could include, but are not limited to, museums, aquariums, cultural centers, interpretive centers, natural laboratories for researchers and students, research and teaching laboratories, and classrooms and offices for technical and support personnel, in order to educate visitors about injured resources resulting from the Spill and/or the recovery of those resources. The aim of these facilities is to provide a location in which environmental and cultural education and outreach can occur through a variety of different mediums. These facilities could vary in form, content, and even function but would concentrate on the coastal resources of the Gulf of Mexico.

Create or enhance natural resource related education programs. The focus on coastal resources could stimulate the general public's interest and understanding of the natural science, environment, and cultural history of the Gulf coastal region. This interest would be enhanced by providing educational features for both the public and students through coastal exhibits and collections, hands-on activities, educational outreach programs related to coastal resources, and other interactive activities. The public would learn about the complexity and importance of coastal ecosystems and come away with a better understanding of the surrounding marine ecosystems of the Gulf and the impact humans are having on these environments. These programs could link recreational activities such as bird watching, hiking, and fishing with educational components, such as including a bird specialist with a bird watching group, including an interpretive trail on hikes near educational facilities, or combining a youth fishing pond with educational information on the management of recreational fishing in the Gulf of Mexico.

5.3.6 Alternative 3: Consistency with Programmatic Evaluation Criteria

Alternative 3 is consistent with the programmatic criteria identified in this chapter (Section 5.2), for reasons summarized below:

- The alternative incorporates multiple project types to address a different and important type of injury caused by the Spill and not captured in Alternative 2: lost and degraded recreational use of Gulf resources;
- Although natural resource damage assessment activities are ongoing, information available to date indicates that recreational use impacts caused by the Spill are substantial, and this alternative contributes to the Trustee goal of making the environment and the public whole in a complementary, albeit different manner than Alternative 2;
- As described throughout the preceding section of this document, there are multiple, well-established, commonly utilized techniques available for undertaking projects within Alternative 3. Project types that are technically feasible, have a high likelihood of success and can be implemented in conformance with applicable laws, regulations and permits are available; and
- As described in Chapter 6 of this document, the Trustees have carefully considered the potential beneficial and adverse impacts of Alternative 3 project types, and based on that evaluation find that implementation of this Alternative would reasonably limit the potential for collateral injury(ies).

This alternative meets the purpose and need for Early Restoration described in Chapter 1. This programmatic alternative allows the Trustees to consider 35 of the 44 projects described in Chapters 8-12 as the projects proposed for implementation in Phase III. All projects are subject to individual review

under OPA, NEPA and other statutes and ultimately to individual decision by the Trustees whether to proceed or not proceed with selection of a given project. If this alternative were selected, projects identified to propose in any specific restoration planning phases (inclusive of Phase III) would focus on, and be limited to, projects addressing lost recreational use. Correspondingly, if all of the available Early Restoration funding is expended, relatively more Offsets for recreational use loss would be established by Early Restoration when compared to alternatives 2 and 4. All accounting for Early Restoration Offsets as credits for injury would be conducted in the final natural resources damage claim.

5.3.7 Alternative 4: (Preferred Alternative) Contribute to Restoring Habitats, Living Coastal and Marine Resources, and Recreational Opportunities

Alternative 4 is the Trustees' preferred alternative. Under Alternative 4, the Trustees would focus on pursuing Early Restoration project types and associated specific projects that contribute to the initial restoration and protection of certain habitats and living coastal and marine resources, and to restoring for lost recreational uses. This alternative combines project types allows for proposal and consideration of all specific projects described in Chapters 8-12 appropriate for Early Restoration described in both Alternatives 2 and 3.

5.3.8 Alternative 4: (Preferred Alternative) Consistency with Programmatic Evaluation Criteria

Alternative 4 is consistent with the programmatic criteria identified in this chapter (Section 5.2). As described above, Alternative 4 is a combination of Alternatives 2 and 3, each of which are consistent with programmatic evaluation criteria individually. Combining the two alternatives would allow the Trustees to address a larger number of injuries caused by the Spill than addressed by Alternatives 2 or 3 individually and contribute more broadly to the Trustee goal of making the environment and the public whole, using techniques that are commonly utilized, feasible, highly likely to succeed, and reasonably limited in their potential to cause collateral injury.

This alternative meets the purpose and need for Early Restoration described in Chapter 1. This programmatic alternative allows the Trustees to consider all of the 44 projects described in Chapters 8-12 as the projects proposed for implementation in Phase III. All projects are subject to individual review under OPA, NEPA and other statutes and ultimately subject to individual decision by the Trustees whether to proceed or not proceed with selection of a given project. If the Trustees select the preferred alternative, projects proposed in any specific restoration planning phases (inclusive of Phase III) would focus on projects that restore habitats and living and coastal marine resources as well as projects that address lost recreational use. Correspondingly, if all of the available Early Restoration funding is expended, a more diverse set of projects might be expected under Early Restoration when compared to alternatives 2 and 3. The Trustees currently prefer this alternative since it allows a wider range of restoration project types to be considered to address injured resources. All accounting for Early Restoration Offsets as credits for injury would be conducted in the final natural resources damage claim.